

**Notice of Allowability**

Application No.

10/531,357

Examiner

Phuong T. Bui

Applicant(s)

GREEN ET AL.

Art Unit

1638

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to interview of 7/11/07.
2. ☒ The allowed claim(s) is/are 3,6-8,11,12,19-23 and 28-31.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 7/14/07.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 5/18/07, 9/19/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 7/11/07
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Curtis on July 11, 2007.

The application has been amended as follows:

Claims 4, 5, 9, 10, 13-18, 24-27 and 32-40 have been canceled.

Claim 3 (currently amended). An isolated polynucleotide having at least 90% sequence identity to the sequence of SEQ ID NO:1 [or a fragment or variant thereof] wherein [the fragment or variant] said polynucleotide encodes a polypeptide with *alpha*-farnesene synthase activity.

In claims 6, 7, 11, 12 and 21-23, "An" was amended to —The—.

Claim 8 (currently amended). An isolated polynucleotide encoding a polypeptide having at least 90% sequence identity to [the polypeptide of] SEQ ID NO:2 [or encoding a variant or a fragment of that sequence which], wherein said polypeptide has *alpha*-farnesene synthase activity.

In claims 19, 20 and 28-31, "a" was amended to —the—.

The above amendments were made to cancel non-elected inventions (claims 13-18, 24-27, 32-36 and 38-40), obviate written description and enablement issues under 35 USC 112, first paragraph (claims 3, 4, 8, 9, and 37), obviate duplicate claims and

lack of antecedence issues under 35 USC 112, second paragraph (claims 5-7, 10-12, 19-23, and obviate prior art issues under 35 USC 102(b) (claim 37).

Claims 3,6-8,11,12,19-23 and 28-31 are allowed.

### ***Drawings***

2. The following changes to the drawings have been approved by the examiner and agreed upon by applicant: Applicant will submit new drawings and provide separate figure designations for Fig 21 and Fig 21 (continuation). Each page of drawing must have a separate figure designation. Further, the specification must be amended accordingly to reflect the new figure designations. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

### ***Specification***

3. The disclosure contains embedded hyperlinks and/or other form of browser-executable codes. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. See pages 11 and 41.

### ***Election/Restrictions***

4. The Office acknowledges the receipt of Applicant's restriction election filed May 18, 2007. Applicant elected Group I and specified the sequence as SEQ ID NO:1 encoding SEQ ID NO:2. No traversal is presented. The election is considered to be without traverse. However, upon further examination, a supplement restriction election is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

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Group I, claim(s) 3-12, 19-23, 28-31 and 37, drawn to a polynucleotide.

Group II, claim(s) 13-18, drawn to a polypeptide.

Group III, claim(s) 24-27, drawn to an antisense construct.

Group IV, claim(s) 32, drawn to a first method of using the polynucleotide.

Group V, claim(s) 33-36 and 39, drawn to a second method of using the polynucleotide.

Group VI, claim(s) 38, drawn to a third method of using the polynucleotide.

Group VII, claim(s) 40, drawn to a method of using the polypeptide.

The inventions listed as Groups I-VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: alpha farnesene synthase is not novel. Rupasinghe et al. (J. Amer. Soc. Hort. Sci., 125(1):111-119, 2000 (Applicant's IDS)) teaches isolated alpha farnesene synthase. Furthermore, the polynucleotide, polypeptide and antisense construct are chemically, structurally, biologically and functionally distinct from each other. The polynucleotide can be used to make *alpha*-farnesene synthase while the antisense construct can be used to decrease the level of *alpha*-farnesene synthase.

In the telephone interview of July 11, 2007, Applicant agreed to cancel the non-elected inventions, including newly added Group III as set forth above.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### REASONS FOR ALLOWANCE

5. The following is an examiner's statement of reasons for allowance: the claims are drawn to an isolated polynucleotide encoding a polypeptide having *alpha*-farnesene synthase activity, wherein the encoded polypeptide has an amino acid sequence of at least 90% sequence identity to SEQ ID NO:1 or 2. Since SEQ ID NO:1 and 2 were first disclosed in foreign priority document New Zealand 521984, Applicant shall have priority benefit of the filing date of October 15, 2002. SEQ ID NO:1 was isolated from *Malus domestica*. The closest prior art teaches a sequence from *Mentha spicata* having 33.5% sequence identity with SEQ ID NO:2, (USPN 5871988 (A)). The prior art does not teach or suggest a sequence having 90% sequence identity with Applicant's claimed sequence. *Alpha*-farnesene synthase is an enzyme involved in the biosynthesis of sesquiterpenes (p. 1). SEQ ID NO:1 contains a complete open reading frame encoding the complete protein of SEQ ID NO:2. Accordingly, the claimed invention is novel, has utility and complies with written description and enablement requirements under 35 USC 112, first paragraph.

With regard to canceled claim 37, the prior art teaches a sequence of SEQ ID NO: 5246 which has a 36 contiguous base match (positions 139 to 174) with Applicant's SEQ ID NO:1 (positions 1917 to 1952) (WO200164835 (N)).

Any comments considered necessary by Applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Contact Information**

6. Any inquiry concerning this communications from the Examiner should be directed to Phuong Bui, whose telephone number 571-272-0793.

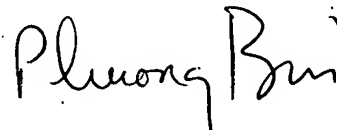
If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached at 571-272-0975.

The fax phone number for the organization where this application or proceeding is assigned, for sending official correspondence, is 571-273-8300.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet.

The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.



Phuong T. Bui  
Primary Examiner  
Art Unit 1638

07/14/07